TP 2 - Problem 10 - I

```cpp
#include <cstring>
#include <iostream>

#define SHOW(arg) std::cout << "Macro SHOW “" #arg "”: " << (arg) << '\n';

// Only to learn pointer arithmetic.
int count1(char const *chr_ptr, char target) {
  int n{};
  while (*chr_ptr != '\0')
    if (*chr_ptr++ == target)
      ++n;
  return n;
}

// Using the “strchr” function from the C standard library.
int count2(char const *chr_ptr, char target) {
  int n{};
  char const *ptr{chr_ptr};
  while ((ptr = std::strchr(ptr, target)) != nullptr) {
```

TP 2 - Problem 10 - II

```
20        ++n;
21        // The terminating null character is considered to be a part of the
22        // string and can be found if searching for '\0'.
23        if (*ptr == '\0')
24          break;
25        ++ptr;
26      }
27      return n;
28    }
29
30    int main() {
31      SHOW(count1("122", '0'))
32      SHOW(count2("122", '0'))
33      SHOW(count1("122", '1'))
34      SHOW(count2("122", '1'))
35      SHOW(count1("122", '2'))
36      SHOW(count2("122", '2'))
37      SHOW(count1("122", '\0'))
38      SHOW(count2("122", '\0'))
```

TP 2 - Problem 10 - III

```
39      return 0;
40  }
```

Output:

```
1   Macro SHOW “count1("122", '0')”: 0
2   Macro SHOW “count2("122", '0')”: 0
3   Macro SHOW “count1("122", '1')”: 1
4   Macro SHOW “count2("122", '1')”: 1
5   Macro SHOW “count1("122", '2')”: 2
6   Macro SHOW “count2("122", '2')”: 2
7   Macro SHOW “count1("122", '\0')”: 0
8   Macro SHOW “count2("122", '\0')”: 1
```